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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ODOM, CURTIS B	

ART UNIT	PAPER NUMBER
2634	9

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/553,776	SRINIVASAN, VENUGOPAL	
	Examiner	Art Unit	
	Curtis B. Odom	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41 and 52-54* is/are pending in the application.

4a) Of the above claim(s) *52-54* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/21/00* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 52-54 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The previously submitted claims recite an invention dealing with encoding and decoding signals using a calculated entropy value. The newly submitted claims recite a machine readable medium for extracting a first entropy value from a signal and calculating a second entropy value from the signal and preventing the rendering of signal information stored on a machine readable medium based on comparison of a first and a second entropy value.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 52-54 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

2. Claims 13 and 20 are objected to because of the following informalities:

a. Regarding claim 13, the word "encoder" is suggested to be changed to "decoder". Appropriate correction is required.

b. Regarding claim 20, the word "based" is suggested to be deleted.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Goertzen (U. S. Patent No. 6, 298, 160).

Regarding claim 1, Regarding claim 1, Goertzen discloses an encoder (Fig. 2, block 240) having an input and an output, wherein the input receives a signal, wherein the encoder calculates an entropy (column 4, line 33-column 6, line 44, wherein the amount of bits used to encode the signal based on a probability value is the entropy value) of at least a portion of the signal and encodes the signal to include data representative of the calculated entropy (column 6, lines, 14-16, wherein the characteristic of the bits used to calculate the probability at the decoder is data representative of the calculated entropy) and wherein the output carries the encoded signal.

Regarding claim 2, which inherits the limitations of claim 1, Goertzen does not disclose the signal is an audio signal. However, Goertzen does disclose the encoding scheme works for coding symbols in a symbol stream (column 2, line 65-column 3, line 11). An audio signal can include symbols in a symbol stream and it is also well known in the art that an entropy can be

calculated and used for the encoding of an audio signal. Therefore, encoding an audio signal using a calculated entropy does not constitute patentability.

Regarding claim 3, which inherits the limitations of claim 1, Goertzen discloses the encoder determines the entropy value based on a summation of probabilities (column 4, lines 33-47 and column 5, lines 31-44), wherein encoding using a probability for each symbol will result in a summation of probabilities for a stream of symbols.

Regarding claim 4, which inherits the limitations of claim 1, Goertzen discloses data representative of the calculated entropy is comprised of bits (column 4, lines 33-47), but does not disclose each bit is coded by amplitude modulation the signal at a pair of frequencies so as to preserve the entropy of the encoded portion of the signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to transmit the encoded signal and preserve the entropy, the signal would have to be modulated. The type of modulation scheme is deemed a design choice and does not constitute patentability.

Regarding claim 5, which inherits the limitations of claim 1, Goertzen discloses the signal is encoded to preserve the entropy of the encoded portion of the signal (column 4, lines 33-54 and column 6, lines 4-20).

Regarding claim 6, which inherits the limitations of claim 1, Goertzen discloses data representative of an entropy is comprised of bits (column 4, lines 33-54) and wherein each bit is coded so as to preserve the entropy of the encoded portion of the signal (column 6, lines 4-20).

Regarding claim 7, which inherits the limitations of claim 1, Goertzen discloses data representative of the entropy value is comprised of bits (column 4, lines 33-54), but does not disclose each bit is coded by swapping a spectral amplitude of at least two frequencies in the

signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to transmit the encoded signal and preserve the entropy, the signal would have to be modulated and transmitted according to a particular scheme. The type of modulation scheme or transmission scheme is deemed a design choice and does not constitute patentability.

Regarding claim 8, which inherits the limitations of claim 1, Goertzen does not disclose the signal is coded to include the entropy value using frequency hopping. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to transmit the encoded signal and preserve the entropy, the signal would have to be modulated and transmitted according to a particular scheme. The type of modulation scheme or transmission scheme is deemed a design choice and does not constitute patentability.

Regarding claim 9, which inherits the limitations of claim 1, Goertzen does not disclose the signal is encoded to include the entropy using spectral modulation. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to transmit the encoded signal and preserve the entropy, the signal would have to be modulated and transmitted according to a particular scheme. The type of modulation scheme or transmission scheme is deemed a design choice and does not constitute patentability.

Regarding claim 10, which inherits the limitations of claim 1, Goertzen does not disclose the entropy value is calculated using histograms. However, it would have been obvious to one skilled in the art at the time the invention was made that a histogram could have provided the same entropy value as the calculation method of Goertzen. It is well known in the art that there

are various ways to calculate an entropy. Thus, the method at which an entropy value is calculated is deemed as design choice and does not constitute patentability.

Regarding claim 11, Goertzen discloses a decoder (Fig. 3, block 340) having an input and an output, wherein the input receives a signal, wherein the decoder decodes the signal so as to read an entropy code from the signal (column 4, lines 33-54 and column 6, lines 4-20), and wherein the output carries a signal based upon the decoded entropy code.

Regarding claim 12, which inherits the limitations of claim 11, However, Goertzen does disclose the decoding scheme works for coding symbols in a symbol stream (column 2, line 65-column 3, line 11). An audio signal can include symbols in a symbol stream and it is also well known in the art that an entropy can be calculated and used for the encoding of an audio signal. Therefore, decoding an audio signal using a calculated entropy does not constitute patentability.

Regarding claim 13, which inherits the limitations of claim 11, Goertzen discloses the decoder determines the entropy value based on a summation of probabilities (column 4, lines 33-47 and column 5, lines 31-44), wherein decoding using a probability for each symbol will result in a summation of probabilities for a stream of symbols.

Regarding claim 14, which inherits the limitations of claim 11, Goertzen does not disclose the entropy code is decoded by amplitude demodulating pairs of frequencies. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to receive and recover the encoded signal and determine the entropy, the signal would have to be demodulated according to the scheme at which signal was modulated and transmitted. The type of modulation/demodulation scheme or transmission/reception scheme is deemed a design choice and does not constitute patentability.

Regarding claim 15, which inherits the limitations of claim 11, Goertzen does not disclose the entropy code is decoded by determining swapping events, and wherein the swapping events correspond to swapping of a spectral amplitude of at least two frequencies in the signal. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to receive and recover the encoded signal and determine the entropy, the signal would have to be demodulated according to the scheme at which signal was modulated and transmitted. The type of modulation/demodulation scheme or transmission/reception scheme is deemed a design choice and does not constitute patentability.

Regarding claim 16, which inherits the limitations of claim 11, Goertzen does not disclose the entropy code is decoded using frequency hopping. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to receive and recover the encoded signal and determine the entropy, the signal would have to be demodulated according to the scheme at which signal was modulated and transmitted. The type of modulation/demodulation scheme or transmission/reception scheme is deemed a design choice and does not constitute patentability.

Regarding claim 17, which inherits the limitations of claim 11, Goertzen does not disclose the entropy code is decoded using spectral demodulation. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made that in order to receive and recover the encoded signal and determine the entropy, the signal would have to be demodulated according to the scheme at which signal was modulated and transmitted. The type of modulation/demodulation scheme or transmission/reception scheme is deemed a design choice and does not constitute patentability.

Regarding claim 18, which inherits the limitations of claim 11, Goertzen discloses the decoder determines an entropy of the signal and compares the determined entropy to an entropy represented by the entropy code (column 6, lines 4-20), wherein determining the probability using the characteristic of the signal determines an entropy of the signal, and using the probability map to match the calculated probability with the original symbol compares the determined entropy to an entropy represented by the entropy code.

Regarding claim 19, which inherits the limitations of claim 18, Goertzen does not disclose the decoder detects compression/decompression based on results from the comparison. However, it would have been obvious to one skilled in the art at the time the invention was made that since entropy encoding/decoding is used for the compression/decompression of data that the entropy contains information about the compressed/decompressed data. Thus, knowing the entropy, certain information about the compressed/decompressed data can be accessed.

Regarding claim 20, which inherits the limitations of claim 18, Goertzen discloses the decoder prevents the use of a device based on the comparison (column 6, lines 41-60)

Regarding claim 21, which inherits the limitations of claim 18, Goertzen discloses the decoder is configured to determine the entropy of the signal based on a sum of probabilities (column 4, lines 33-47 and column 5, lines 31-44), wherein decoding using a probability for each symbol will result in a summation of probabilities for a stream of symbols.

Regarding claims 22-31, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 1-10 which is applicable hereto.

Regarding claims 32-41, the claimed method includes features corresponding to subject matter mentioned in the above rejection of claims 11-18, 20, and 21 which is applicable hereto.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
March 30, 2004

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